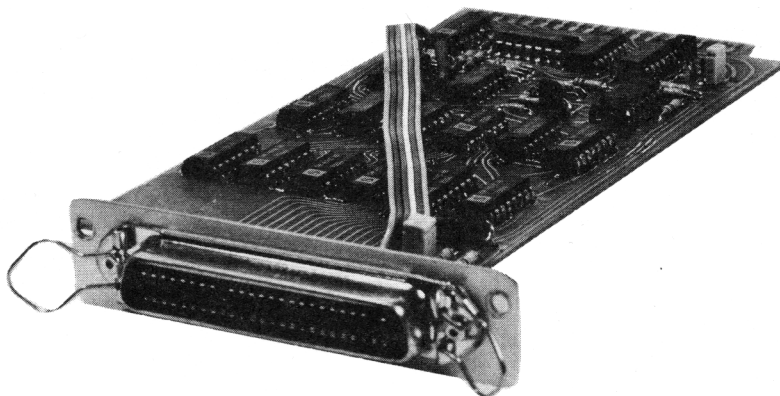


# PHILIPS



## OPERATING AND SERVICE MANUAL

BCD OUTPUT UNIT

# PM 9684

9446 096 840.1



740615/1/01

Ordering number of this manual

9499 460 07211

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## 1. General

The PM 9684 is used to convert the serial BCD output data from PM 6650 into parallel form.

The unit also acts as a buffer and level translator for either TTL levels or HNIL levels, which can be selected by means of a jumper connector on the circuit board.

## 2. Mounting

The unit can be plugged in through a slot in the rear panel of PM 6650 (refer to section VI-3 of the operating manual PM 6650).

## 3. Output connector

The BCD output is available at a 50-pole Amphenol connector type 57-50.

The pinning of the connector is shown in figure 1.

## 4. Outputs

### 4.1 Output levels

Code: N B C D positive true

Logic "1"		<i>TTL-compatible</i>	<i>HNIL-compatible</i>
	Voltage max. limits min.	5 V 2.5 V	12 V 10.5 V
Logic "0"	Current limits max.	1 mA out 0.3 mA in	2 mA out 0.3 mA in
	Voltage max. limits min.	+ 0.4 V 0.0 V	± 0.5 V 0.0 V
Logic "0"	Current limits max.	5 mA	8 mA

### 4.2 Ready (pin 48)

A negative pulse is given when the gate time and the parallel-to-serial conversion is finished.

Output level

	<i>HNIL</i>	<i>TTL</i>
LOW	0.4 V/10 mA max.	0.4 V/10 mA max.
HIGH	10.5 V/0.4 mA max.	3.7 V/0.3 mA max.

### 4.3 + Supply (pin 25)

The selected logic supply is available on pin 25 (12 V or 5 V).

## 5. Command inputs

### 5.1 Input levels

		<i>HNIL</i>	<i>TTL</i>
LOW	min.	- 20 V	- 2.0 V
	max.	+ 4.5 V	+ 0.8 V
HIGH	min.	+ 7.5 V	+ 2.5 V
	max.	+ 18 V	+ 6.5 V

### 5.2 Ext. trigger (pin 46)

A negative pulse having a duration  $t_p$  (set gate time  $\geq T_p \geq 10 \mu s$ ) starts one measuring cycle. The counter will recycle its measuring cycle if the signal is kept constantly low.

### 5.3 Inhibit (pin 47)

No transfer is supplied if the inhibit line is kept low when the last initiated measurement is finished. A transfer appears when the inhibit line returns to high.

6. Decimal point information (Exponent)

Connector contacts: 21 (A), 22 (B), 23 (C).

Binary word C B A	Decimal point	Exponent
0 0 0	0	$10^{-0}$
0 0 1	1	$10^{-1}$
0 1 0	2	$10^{-2}$
0 1 1	3	$10^{-3}$
1 0 0	4	$10^{-4}$
1 0 1	5	$10^{-5}$
1 1 0	6	$10^{-6}$
1 1 1	7	$10^{-7}$

7. Measuring units

Connector contacts: 19 (A), 20 (B), 44 (C)

Binary word C B A	Measuring unit
0 0 0	--- (No go)
0 0 1	ns
0 1 0	$\mu$ s
0 1 1	ms
1 0 0	s
1 0 1	kHz
1 1 0	MHz
1 1 1	GHz

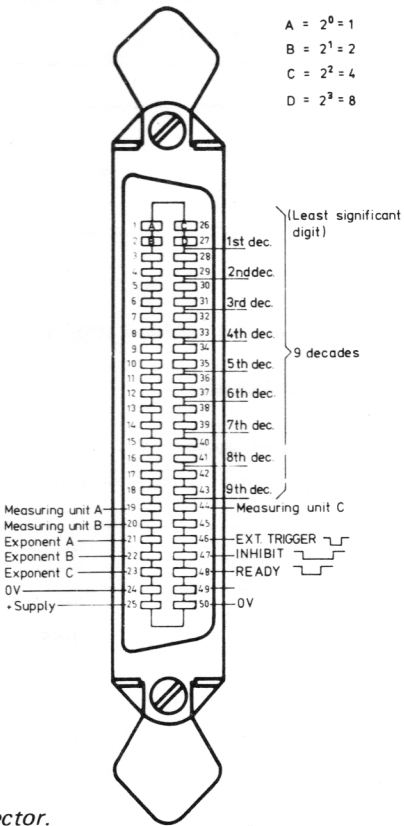


Figure 1. Pinning of the connector.

## Parts lists

PM 9684

### Resistors

No.	Ordering number	Value	Tolerance (%)	Description
R101	4822 110 63134	10K	5	Carbon
R102	4822 110 63134	10K	5	Carbon
R103	4822 110 63134	10K	5	Carbon
R104	4822 110 63134	10K	5	Carbon
R105	4822 110 63134	10K	5	Carbon
R106	4822 110 63134	10K	5	Carbon
R107	4822 110 63134	10K	5	Carbon
R108	4822 110 63134	10K	5	Carbon
R109	4822 110 63149	39K	5	Carbon
R110	4822 110 63123	3.9K	5	Carbon
R111	4822 110 63134	10K	5	Carbon
R112	4822 110 63134	10K	5	Carbon
R113	4822 110 63134	10K	5	Carbon
R115	4822 110 63134	10K	5	Carbon
R117	4822 110 63134	10K	5	Carbon
R118	5322 116 54572	2.00K	1	Metal film
R119	5322 116 54568	1.82K	1	Metal film
R121	4822 110 63134	10K	5	Carbon
R122	4822 110 63134	10K	5	Carbon
R123	4822 110 63134	10K	5	Carbon
R124	4822 110 63134	10K	5	Carbon
R125	4822 110 63134	10K	5	Carbon
R126	4822 110 63134	10K	5	Carbon
R127	4822 110 63134	10K	5	Carbon

### Capacitors

No.	Ordering number	Value	Tolerance (%)	Voltage (V)	Description
C101	4822 122 31081	100 pF	2	63	Ceramic plate
C102	4822 122 30114	2.2 nF	10	100	Ceramic plate
C103	4822 122 30043	10 nF	-20+80	40	Ceramic plate
C104	4822 122 30043	10 nF	-20+80	40	Ceramic plate

### Diodes

No.	Ordering number	Description
GR101	5322 130 30767	BZX79-C5V1

### Transistors

No.	Ordering number	Description
TS101	4822 130 40959	BC547B

### Integrated circuits

No.	Ordering number	Description	Remarks
IC101	5322 209 84499	CD 4050 AE	RCA
IC102	5322 209 84499	CD 4050 AE	RCA
IC103	5322 209 84499	CD 4050 AE	RCA
IC104	5322 209 84499	CD 4050 AE	RCA
IC105	5322 209 84499	CD 4050 AE	RCA
IC106	5322 209 84499	CD 4050 AE	RCA
IC107	5322 209 84502	CD 4015 AE	RCA
IC108	5322 209 84506	CD 4013 AE	RCA
IC109	5322 209 84502	CD 4015 AE	RCA
IC110	5322 209 84502	CD 4015 AE	RCA
IC111	5322 209 84506	CD 4013 AE	RCA
IC112	5322 209 84502	CD 4015 AE	RCA
IC113	5322 209 84505	CD 4001 AE	RCA
IC114	5322 209 84501	CD 4011 AE	RCA
IC115	5322 209 84423	OQ-003	Philips
IC116	5322 209 84464	SN 7409 AN	Texas
IC117	5322 209 84464	SN 7409 AN	Texas
IC118	5322 209 80242	SN 7405 AN	Texas
IC119	5322 209 84499	CD 4050 AE	RCA

### Miscellaneous

Item	Ordering number	Description
SK101	5322 268 14033	Jumper pin
	5322 263 64007	Jumper
L101	5322 158 10052	Choke
	5322 267 70015	Connector, 50-pole

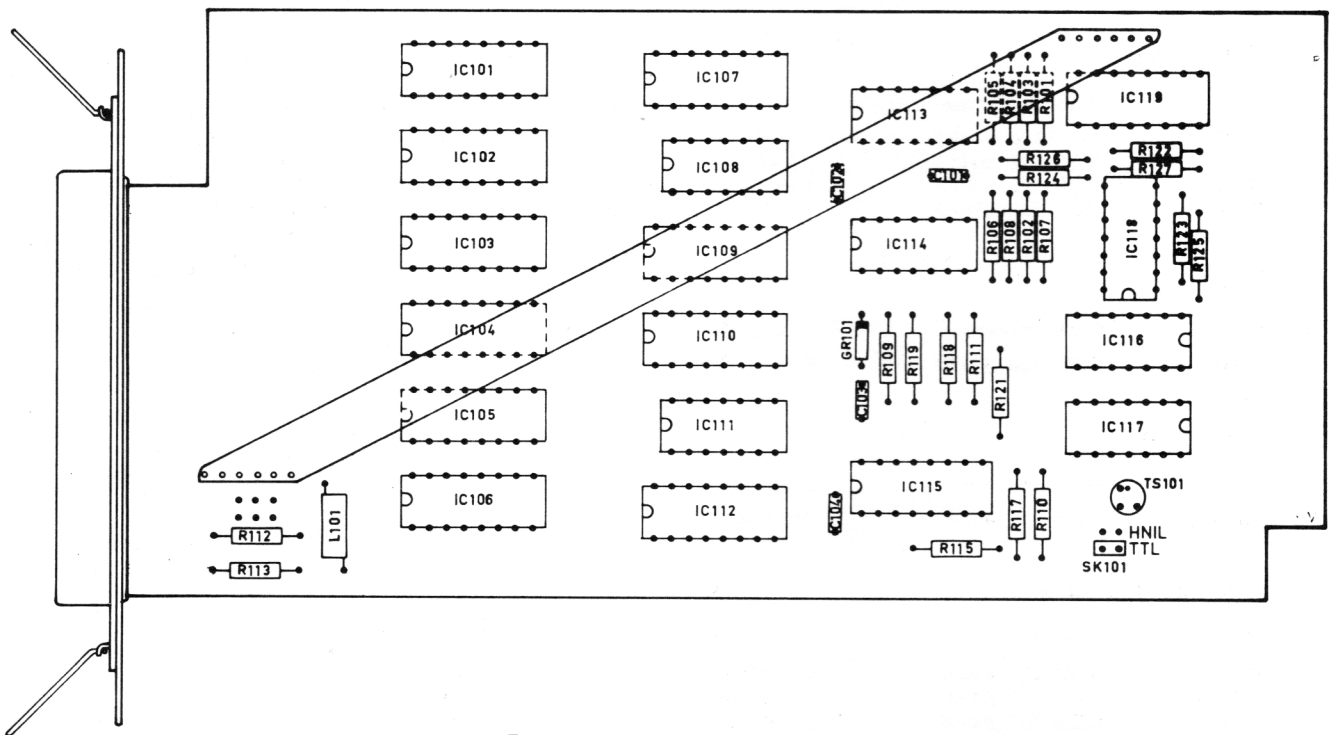
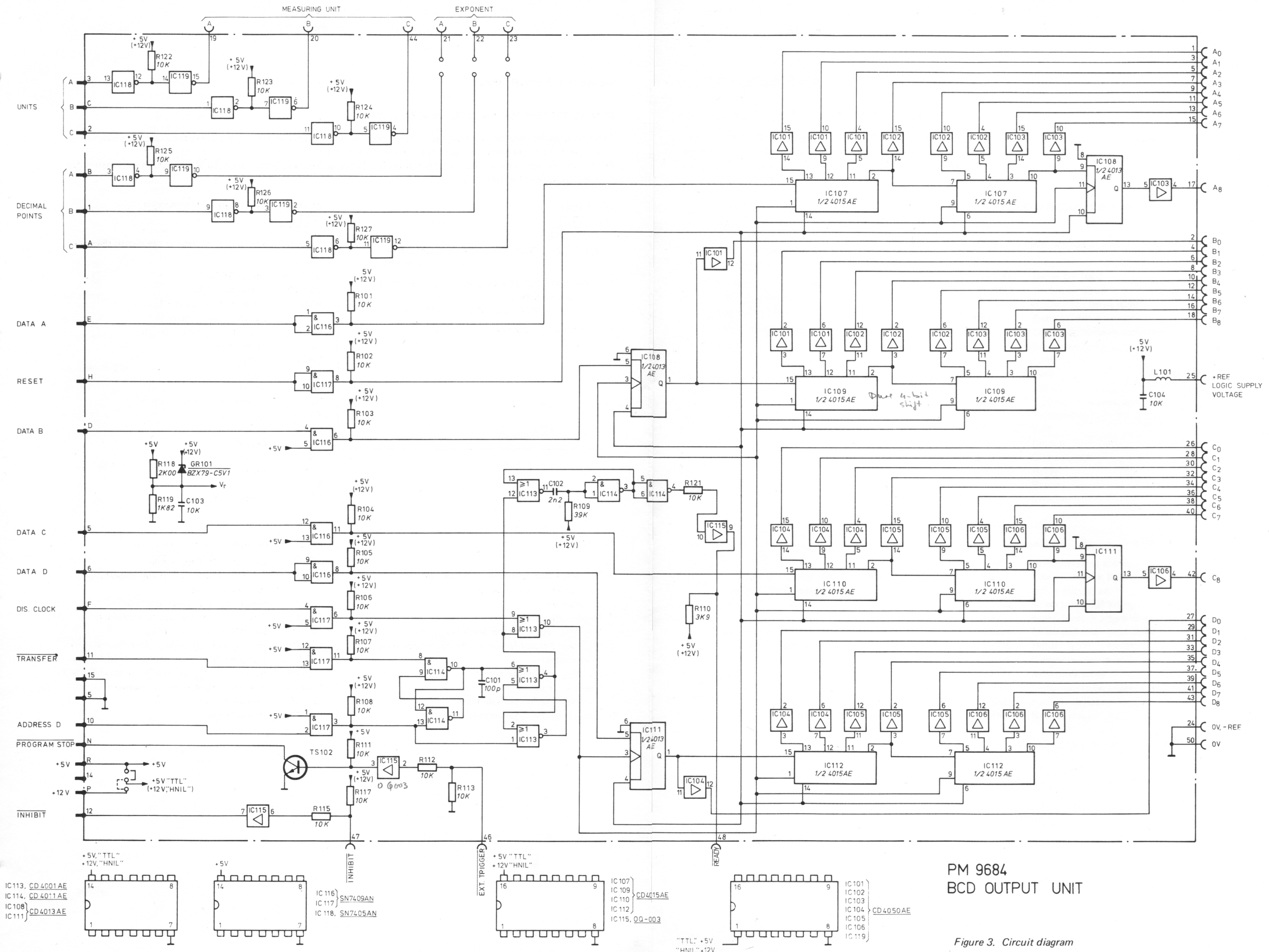


Figure 2. Component layout PM9684.





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